



... for a brighter future

APS/Users Operations Monthly Meeting

J. Murray Gibson

January 28, 2009



U.S. Department
of Energy

UChicago ►
Argonne_{LLC}



A U.S. Department of Energy laboratory
managed by UChicago Argonne, LLC

Agenda

- 2:30 p.m. Refreshments
- 2:45 p.m. APS Update – Murray Gibson
- 3:05 p.m. Update on Constructing a Dedicated Fuel Spray Beamline at 7-BM – Jin Wang
- 3:25 p.m. Planned Beamline Developments at NSLS-II – Mark Beno
- 3:45 p.m. Adjourn

Safety

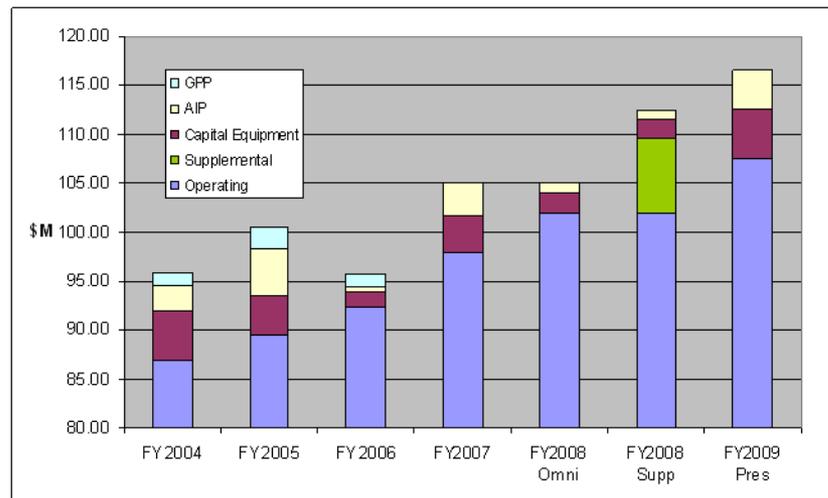


- Be wary of slips in winter weather
 - Slips, trips and falls are responsible for 20% of workplace injuries
- Report hazardous locations
 - Report icy spots which have not been cleared or have re-iced
 - Identify places that don't drain well etc. for possible engineered fixes
 - Contact Rick Janik, Building Manager (x6068, REJ@aps.anl.gov)

Budget update

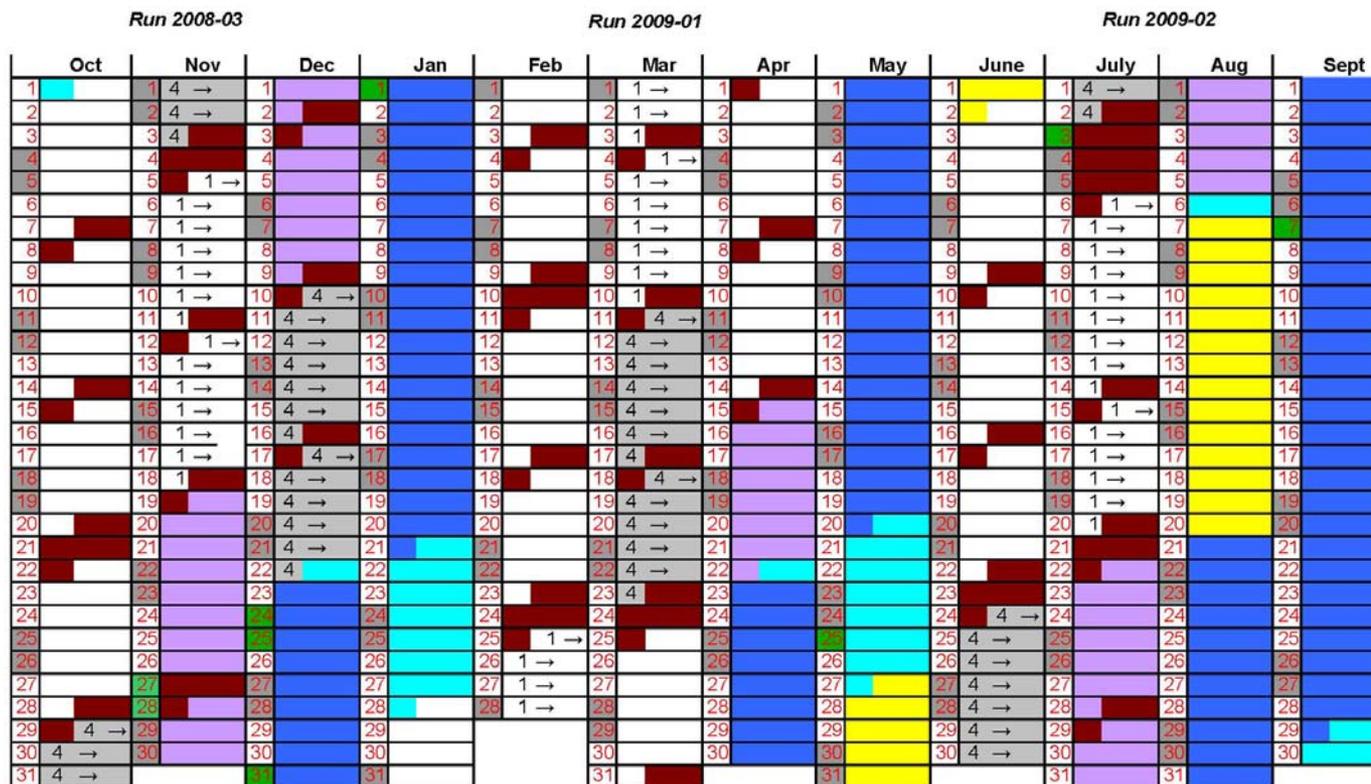
- Three important events for APS due to happen in February
 - Stimulus package – DOE Science House - \$1.9B, Senate \$430M
 - *expected by mid February*
 - FY 2009 Omnibus bill
 - *expected by March 6th expiry of CR*
 - FY 2010 Budget Cycle (AIP)
 - *February 2: Obama administration send placeholder budget to Congress; Mid to Late February: Administration scheduled to release a budget outline; April: Administration scheduled to release detailed budget plan*

- Guardedly optimistic,
but still preparing for difficult scenarios



2009 Run Schedule has flexibility for bad budget scenario

APS FY 2009 – With Budget Limitations Long Range Operations Schedule



User Operation in standard lattice
 User Operation in Reduced Horizontal Beam Lattice (RHB)

Top-Up Operations is standard unless indicated in fill pattern

SOM Periods
 1 Hybrid Fill - (singlet)
 4 324 Singlets - Non Top-Up

Fill pattern is 24 singlets unless otherwise indicated by number

Machine Studies
 Maintenance
 Shifts set aside for Studies/
 Machine Intervention as Needed

Weekends
 Lab Holidays
 Anticipated Extension
 Of Maintenance
 Periods due to
 Budget Limitations

12/16/2008

APS Renewal plans move forward

APS Renewal | Advanced Photon Source - Mozilla Firefox

http://www.aps.anl.gov/Renewal/

Argonne NATIONAL LABORATORY

Advanced Photon Source
A U.S. Department of Energy, Office of Science,
Office of Basic Energy Sciences national synchrotron x-ray research facility

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APS Renewal

Message from Murray Gibson:

Renewing and upgrading the Advanced Photon Source: a real opportunity for user engagement

May 22, 2008

Now in its twelfth year of operation, the Advanced Photon Source (APS) annually provides almost 3500 users with brilliant x-rays that lead to more than 1000 refereed publications each year covering many areas of science and engineering. Nevertheless, the facility, like any scientific instrument, is showing its age, and we have been working for several years on renewal and upgrade plans. These plans have recently received a boost because our sponsor - the U.S. Department of Energy, Office of Science, Office of Basic Energy Sciences - has asked us for a detailed, science-driven plan for the renewal of APS to cover the next five years. This renewal plan will encompass innovations in the beamlines and the x-ray source that are needed for major improvements in important areas of user science. We are engaging our users and staff *ab initio* in building this APS renewal plan, and we will use our [Scientific Advisory Committee](#) (SAC) and other outside experts to help us craft a plan with maximum scientific impact. A planning milestone will be a workshop to be held October 20-21, 2008 near the APS, at which the SAC will take a first complete look at the plan and give their advice. At present we continue to solicit proposals from our beamline staff, users, and accelerator and other APS staff. These proposals will be filtered by science-focused user groups, and they will also be analyzed in a matrix fashion by technique coordinators. More information, as well as details about how you can take part in the planning and communicate your perspective, can be found on this Web site.

2008 2010 2012 2014 2016 2018 2020

The renewal of APS is the first component of a strategic plan for the APS that aims to provide our users with the best hard x-ray source in the nation, and beyond, by the year 2020. During the renewal period, we will be evaluating, with

SAC-approved Letters of Intent (LOIs) or Proposals for New and Redeveloped Beamlines:

- Advanced X-ray Imaging Collaborative Development Team (AXI-CDT)
- BioNanoProbe
- Sector 8-BM Redevelopment
- X-ray High Field Collaborative Development Team (XHF-CDT)
- X-ray Interfacial Science Collaborative Development Team (XIS-CDT)

Medium-Term Proposals:

- Beamlines | [Call for Proposals \(pdf\)](#)
- Accelerator Systems | [Call for Proposals \(pdf\)](#)

APS 2020 Upgrade Plan:

- APS Upgrade Options

Steering Committee Members:

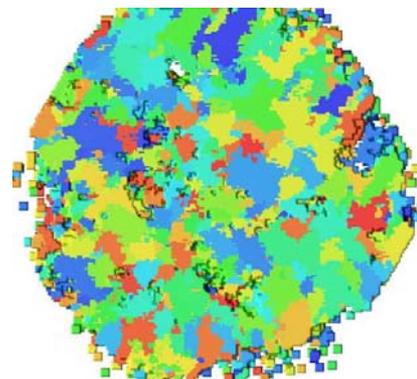
- Denny Mills
- Rod Gerig
- George Srajer
- John Maclean
- Denis Keane (APS PUC Chair)
- Paul Fuoss (APSUCO Rep)
- Bob Fischetti (Life Sciences Council Chair)
- Dan Neumann (SAC Member)

APS Renewal Themes emerged from October workshop

■ Mastering hierarchical structures through x-ray imaging

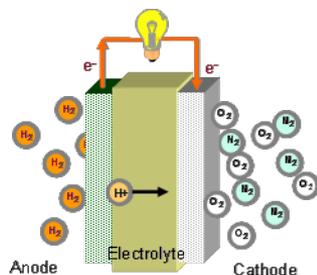


Images from proteins to living organisms will help connect the dots in understanding how genetics controls health and disease (image courtesy W.K. Lee)

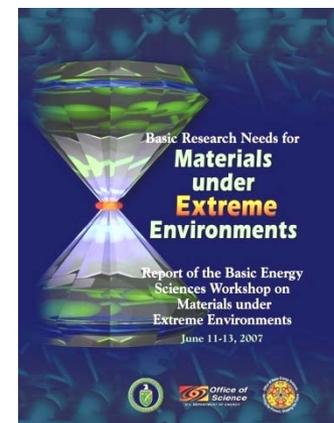


3-D distribution of grains in a 1 mm cube of Al (courtesy R. Suter)

■ Real materials in real conditions in real time



Schematic of an H_2 fuel cell



The cover of this BESAC report shows a diamond anvil cell. APS has been the most prolific source of high-pressure science.

Anticipated path to APS renewal

- Instrument proposals solicited (Summer 2008)
- Science thrusts chosen (Oct 2008)
- Whitepaper submitted to DOE (Nov 2008)
- **Refinement of instrument ideas in context of science drivers (now)**
- Workshop proceedings released (Feb 2009)
- User meeting of May 2009 focused on renewal
- Hope to move forward with project conceptual design in FY 2010
 - Discussions ongoing with DOE-BES
 - Other deliverables (e.g. proposal) to be determined
- Keep momentum, continuing to be open to user input
 - SAC has provided guidance on moving forward
 - *details to be discussed with BES and coordinating committee, determined and released soon*

2009 User's Meeting - Focus on the Future

	Sunday	Monday	Tuesday	Wednesday
7:00		Registration		
7:15		Welcome	Introduction	
7:30		ANL Strategic	Physics	
7:45		DOE-BES	Life	
8:00		Congress	Energy	
8:15		Coffee		
8:30		APS View	Materials	
8:45		EMC View	Pres	
9:00		CNM View	Chemis	
9:15			ction	
9:30				
9:45				
10:00		LUNCH		
10:15				
10:30		Compton Award		
10:45		Student Award		
11:00		EMC Highlight		
11:15		Coffee		
11:30		CNM Highlight		
11:45		APS Highlight		
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- Meeting runs from May 3 through May 6
- Two days of the meeting will concentrate on the APS Renewal
- Nominations are requested for Compton Award
- Students can compete for poster prizes and a featured talk
- Is there interest in tutorials
 - Machine Physics
 - X-Ray Optics
 - EPICS and Controls
 - SAXS Analysis
 - EXAFS Analysis
 - PDF Analysis

Feedback to Paul Fuoss (fuoss@anl.gov)

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